

FOUR NEW SPECIES OF STOMATOPOD CRUSTACEANS FROM THE PHILIPPINES

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Abstract.—*Haptosquilla philippinensis*, *Clorida nazasaensis*, *Levisquilla armata*, and *Oratosquilla microps*, all from localities in the Philippine Islands, are named.

The species reported here were discovered by one of us (R.G.G.) during a preliminary survey of the stomatopod fauna of the Philippines. Holotypes of the four new species are deposited in the National Museum of the Philippines, Manila (NMCR); some paratypes also have been deposited in the Crustacea collection, National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM). All measurements are in millimeters.

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Family Protosquillidae Manning, 1980
Haptosquilla philippinensis, new species

Fig. 1

Material.—Talaan, Sariaya, Quezon, Tayabas Bay, 13°45'N, 121°45'E; J. Sy and R. Rivera, leg.; March 1978: 1 female (holotype, NMCR 2866).

Description.—Cornea subglobular, set obliquely on stalk. Ocular scales well developed, produced into triangular lobes laterally, falling short of lateral rostral spines.

Rostral plate trispinous, median spine more slender and longer than laterals, latter slender, sharp, extending to bases of eyestalks.

Anterior margins of lateral plates of carapace slightly concave, anterolateral angles rounded, not strongly produced.

Mandibular palp 2-segmented.

Inflated part of outer margin of dactylus notched. Propodus with single movable spine proximally on inner margin.

Anterior 4 abdominal somites smooth, unarmed, not carinate dorsally. Fifth somite smooth medially, with 2 low longitudinal carinae laterally above lateral margin, separated by a deep groove. Sixth somite with 6 carinae, each spined posteriorly, submedians and intermediates rather broad, inflated, ornamented laterally with scattered setae.

Telson slightly broader than long, with 4 pairs of marginal teeth, submedians with movable apices. Dorsal surface of telson with 3 bosses, median smallest, triangular, laterals longer, oblong, extending about to midlength of telson but beyond median cleft. All 3 bosses ornamented with setae. Inner margins of submedian marginal teeth with 8 denticles, intermediate and lateral teeth each with fixed mesial denticle, marginal teeth lacking denticles.

Uropods stout, proximal segment of exopod with 9 short movable spines, distalmost extending beyond midlength of distal segment. Inner spine of basal prolongation of uropod well developed but shorter than outer.

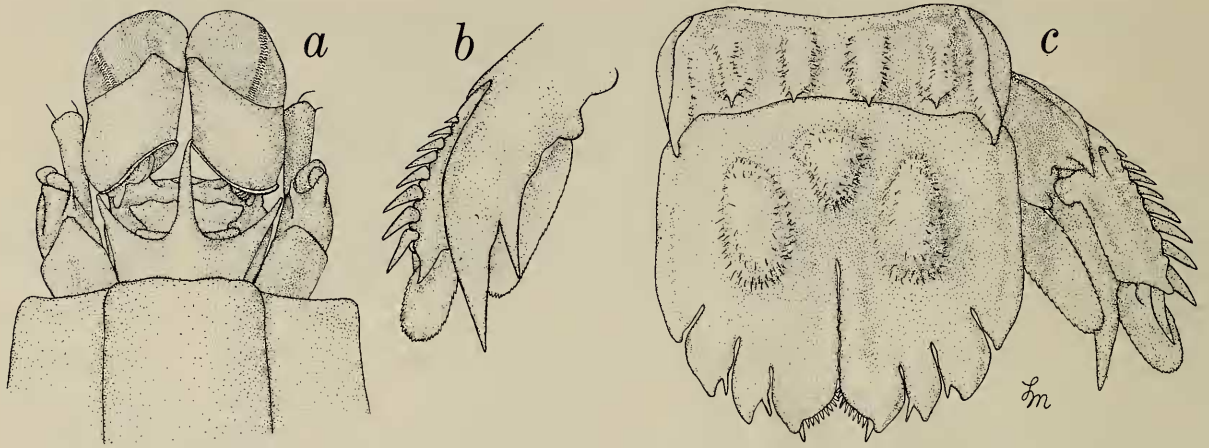


Fig. 1. *Haptosquilla philippinensis*, female holotype: a, Anterior part of body; b, Uropod, ventral view; c, Sixth abdominal somite, telson, and uropod.

Color.—Body ornamented with dark chromatophores in 2 broad bands across carapace and scattered over thoracic and abdominal somites. Sixth thoracic somite with broad median dark patch, extending posteriorly onto seventh somite, as well as a pronounced dark spot on each lateral process. Second abdominal somite with dark rectangular patch, fifth with submedian pair of rounded dark spots.

Measurements.—Total length 20; carapace length 4.0; eye length 2.1; cornea width 0.9; rostral plate length 1.6, width 1.9; fifth abdominal somite width 3.8; telson length 3.4, width 3.7.

Remarks.—This small species resembles *H. proxima* Kemp (1915: 183, pl. 1, figs. 9, 10) in most respects, but differs in several features: the mandibular palp is present, the bosses of the sixth abdominal somite are armed posteriorly, and the dorsal bosses of the telson are larger and are shaped differently. In *H. proxima* all three bosses are subequal in size and almost circular in shape, whereas in *H. philippinensis* the median is triangular and the laterals are larger and oval in shape.

Haptosquilla philippinensis also resembles *H. setifera* Manning (1969: 162, fig. 8) from Bougainville, Solomon Islands, but in the latter species the median boss of the telson is comparatively larger, resembling the laterals in size and shape.

Etymology.—The specific epithet reflects the location of the type-locality in the Philippine Islands.

Family Squillidae Latreille, 1803

Clorida nazasaensis, new species

Fig. 2

Material.—Nazasa Bay, Zambales, 14°49'N, 120°06'E; 9–20 fms [3–37 m]; dredge; F. G. Dayrit and J. E. Norton, Leg.; 30 January–8 February 1960: 1 male (holotype, NMCR 741).

Description.—Size small, total length of adult male 43 mm.

Eye large, flask-shaped, extending about to middle of first segment of antennular peduncle. Cornea small, bilobed, set obliquely on stalk, cornea width about $\frac{1}{3}$ eye length, $\frac{1}{2}$ stalk width. Ocular scales fused into bilobed plate.

Antennular peduncle as long as carapace.

Rostral plate short, triangular, broader than long, median carina absent.

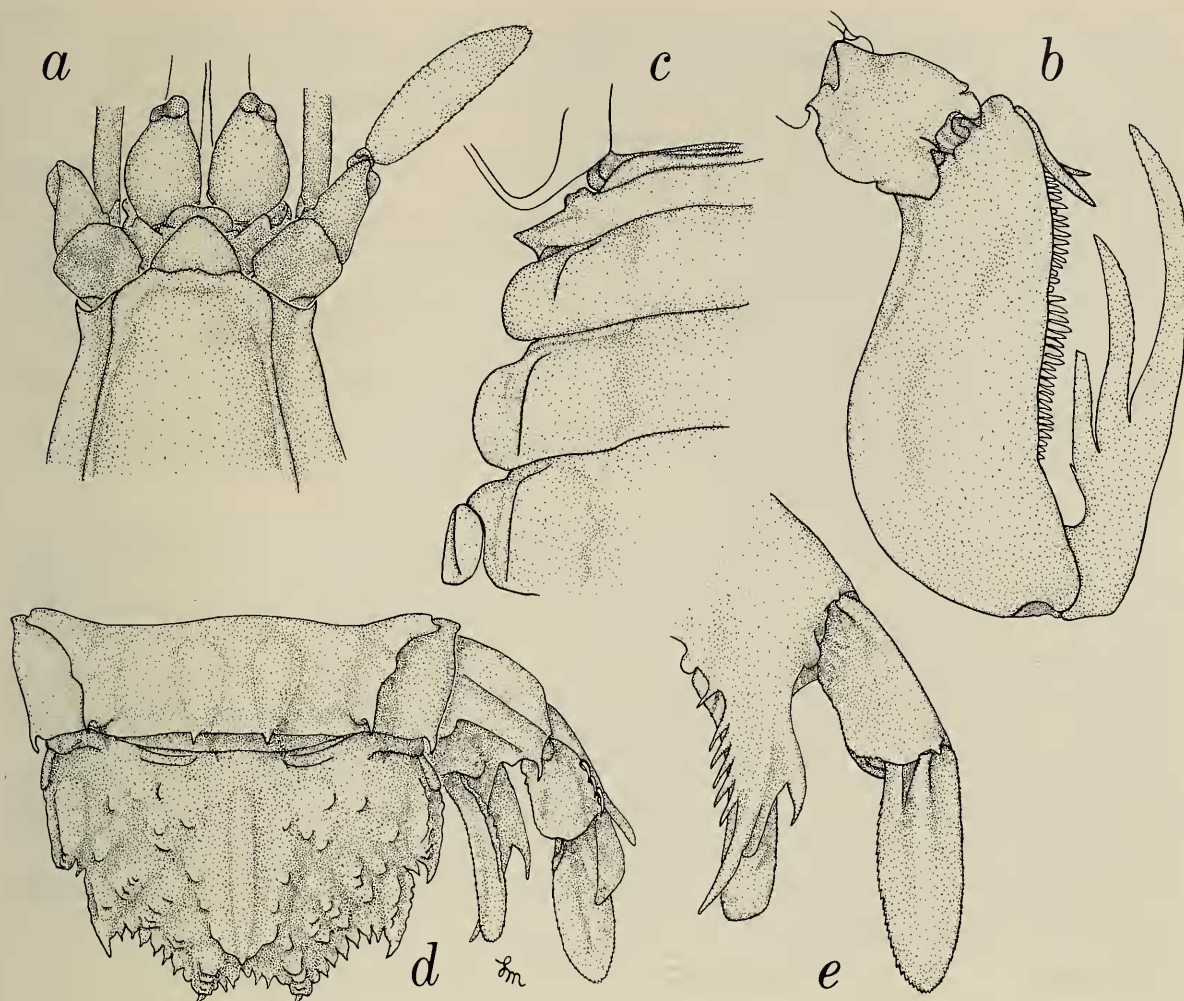


Fig. 2. *Clorida nazasaensis*, male holotype: *a*, Anterior part of body; *b*, Claw; *c*, Lateral processes of exposed thoracic somites; *d*, Sixth abdominal somite, telson, and uropod; *e*, Uropod, ventral view.

Carapace strongly narrowed anteriorly, anterior width less than half median length. Surface smooth, lacking carinae except for reflected marginals on posterior part of lateral plates. Anterolateral spines strong but falling short of base of rostral plate.

Mandibular palp absent; 4 epipods present.

Raptorial claw large, stout. Dactylus slender, with 4 teeth on inner margin, proximal very small, appressed to base of next tooth. Propodus strongly inflated, opposable margins pectinate on proximal $\frac{2}{3}$ of outer margin, with 3 movable spines proximally on inner margin. Dorsal ridge of carpus undivided, ending in blunt lobe ornamented mesially with patch of setae.

Exposed thoracic somites lacking submedian carinae, posterior 3 somites with intermediate carinae. Lateral process of fifth thoracic somite short, appearing acute in dorsal view, in lateral view a rounded lobe, compressed antero-posteriorly. No ventral spine present on fifth somite. Lateral processes of sixth and seventh somites broadly rounded laterally.

Abdomen broad, strongly depressed, submedian carinae absent except on sixth somite. Abdominal carinae spined as follows: submedian 6, intermediate 5–6, lateral 6, marginal 5.

Telson broader than long, inflated, with 3 pairs of marginal teeth, submedians

with movable apices. Lateral margins of intermediate and lateral teeth tuberculate or crenulate. Short, inconspicuous prelateral lobes present. Dorsal surface of telson with numerous broad tubercles, as illustrated. Denticles spiniform, 3–4, 7, 1. Ventral surface lacking distinct postanal keel.

Uropods stout, proximal segment of exopod shorter than distal, with 5 movable spines on outer margin, proximal 3 small, spiniform, situated dorsally, distal 2 much larger, situated marginally, distalmost spatulate, extending about to mid-length of distal segment. Inner spine of basal prolongation of uropod the longer, with low, rounded lobe on outer margin and 6 strong spines on inner margin.

Color.—Carapace outlined with thin line of dark pigment, similar thin line present posteriorly on posterior 3 thoracic and anterior 5 abdominal somites. Uropod with a dark spot on inner distal margin of proximal segment of exopod, distal segment dark on inner half.

Measurements.—Male holotype, total length 43 mm. Other measurements: carapace length 9.0; anterior width carapace 4.1; cornea width 0.7; eyestalk length 2.2, width 1.4; antennular peduncle length 9.0; rostral plate length 1.0, width 1.7; telson length 7.5, width 10.2.

Remarks.—This new species most closely resembles *C. severi* Moosa (1973: 22, fig. 4), a species described from Indonesia. It differs from the latter species in several important respects: there are only 3 rather than 4 well formed teeth on the dactylus of the claw, the proximal being very reduced; there are fewer, larger dorsal teeth on the telson and no postanal keel ventrally; and there are only 5 movable spines on the uropod, the proximal 3 slender, the distal 2 much enlarged, with the distalmost spatulate.

Etymology.—The specific epithet is derived from the type-locality.

Levisquilla armata, new species

Fig. 3

Material.—Cape Calabite, Occidental Mindoro, 13°23'N, 120°19'E; F. G. Dayrit and J. E. Norton, leg.; March 1960: 16 males, 14 females (NMCR 802; 2 males, 2 females from this lot USNM 190708).—Off Laoy Island, Bohol, 09°36'N, 124°01'E; 45 fms (82 m); dredge; Pele-Sulu Sea Expedition; 8 February 1964: 3 males, 2 females (NMCR 1370).—South Panglao, Panglao Island, Bohol, 09°35'N, 123°48'E; 45–70 fms (82–128 m); dredge; Pele-Sulu Sea Expedition: 2 males (NMCR 1384; larger male is holotype, remainder of specimens are paratypes).

Description.—Size small, total length of adults less than 50 mm. Dorsal surface of body appearing smooth, polished.

Eye small, elongate, cornea bilobed, set obliquely on stalk. Eyes extending to or almost to end of first segment of antennular peduncle. Corneal indices 338–500, lower in smaller specimens.

Antennular peduncle slightly shorter than carapace. Dorsal processes of antennular somite produced into acute projections directed anterolaterally.

Rostral plate triangular, length and width subequal or slightly longer than broad, without carinae, apex sharp.

Carapace smooth, anterior width about half median length. Anterolateral spines strong but falling short of base of rostral plate. Median carina completely absent, short intermediates and reflected marginals present posteriorly on lateral plates.

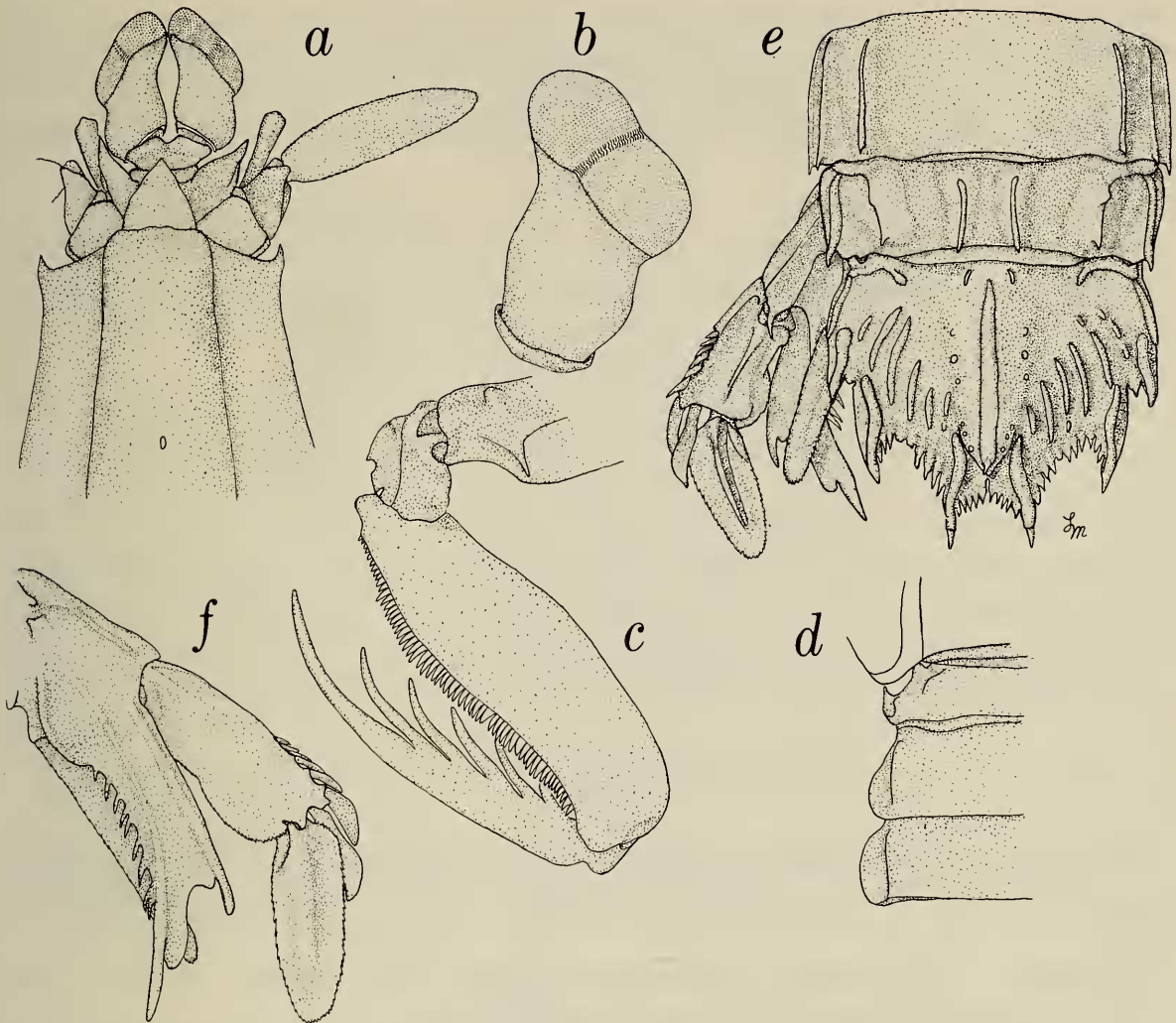


Fig. 3. *Levisquilla armata*, female paratype, TL 38 mm: *a*, Anterior part of body; *b*, Eye; *c*, Claw; *d*, Lateral processes of fifth, sixth, and seventh thoracic somites; *e*, Fifth and sixth abdominal somites, telson, and uropod; *f*, Uropod, ventral view.

Mandibular palp absent; 4 epipods present.

Dactylus of claw with 6 teeth, outer margin evenly curved or faintly flattened, with strong basal notch. Dorsal ridge of carpus undivided. Inferodistal angle of merus unarmed.

Exposed thoracic somites lacking submedian carinae, intermediates present on posterior 3 somites. Lateral process of fifth thoracic somite a slender spine directed anterolaterally, flanked ventrally by a slender spine. Lateral processes of sixth and seventh somites undivided, rounded, that of seventh somite the larger.

Abdomen lacking any trace of submedian carinae on anterior 5 somites, remainder of carinae spined as follows: submedian 6, intermediate 5–6, lateral 5–6, marginal (3–4)–5.

Telson broader than long, with well marked median carina, short carinae on marginal teeth, and prelateral lobe. Dorsal surface with several curved rows of short carinae or rows of tubercles on each side, as illustrated. Submedian teeth with movable apices. Denticles sharp and slender, 3–5, 9–13, 1 (usually 4, 10–11, 1). Ventral surface with short but distinct median carina.

Uropod rather stout, proximal segment of exopod (measured dorsally) shorter than distal, with row of 7–9 graded spines on outer margin, proximals slender, sharp, distal 2 enlarged, spatulate. Basal prolongation with 2 rounded lobes between apical spines and with row of 5–13 (usually 9) slender spines along inner margin.

Color.—Completely faded.

Measurements.—Total lengths of males 21 to 44.5 mm, of females 22 to 50 mm. Other measurements of male holotype, 43.5 mm: carapace length 9.2; anterior width of carapace 4.5; antennular peduncle length 8.8; cornea width 2.0; rostral plate length 1.5, width 1.4; telson length 7.4, width 8.2.

Remarks.—This new species can be distinguished immediately from the only other species assigned to *Levisquilla* (see Manning 1977:422), the type-species *L. inermis* (Manning, 1965:255, fig. 2) by the dorsal carinae on the telson; in *L. inermis* the dorsal surface of the telson is smooth. Further, in *L. inermis* the rostrum is more rounded anteriorly, the dorsal processes of the antennular somite are more slender and sharper, and the proximal of the 2 lobes between the spines of the basal prolongation of the uropod is much less pronounced.

Etymology.—The specific epithet is from the Latin, *armatus*, armed.

Oratosquilla microps, new species

Fig. 4

Material.—Cabulan Island, Bohol, 10°10'N, 124°02'E; 20–30 fms (37–55 m); dredge; Pele-Sulu Sea Expedition; 5 February 1964: 1 male (holotype, NMCR 2868).

Description.—Size small, total length of adult male holotype 50 mm. Body appearing smooth, lightly pitted under magnification.

Eye very small, cornea bilobed, set obliquely on stalk. Eyes not extending to end of first segment of antennular peduncle. Corneal index 492.

Antennular peduncle subequal to carapace in length. Dorsal processes of antennular somite produced into acute spines directed anterolaterally.

Rostral plate tongue-shaped, slightly broader than long, apex rounded. Median carina absent. Anterior width of carapace more than half median length. Anterolateral spines strong but falling short of base of rostral plate. Median carina lacking anterior bifurcation. Intermediate carinae falling short of anterior margins of lateral plates.

Mandibular palp present; 4 epipods present.

Dactylus of claw with 6 teeth, outer margin sinuate. Dorsal ridge of carpus undivided. Inferodistal angle of outer face of merus with acute spine.

Exposed thoracic somites with unarmed submedian and intermediate carinae. Lateral process of fifth somite bilobed, anterior lobe a slender, sharp, anteriorly directed spine, posterior lobe smaller, triangular. Lateral process of sixth somite bilobed, anterior lobe very slender, rectangular, distally truncated, blunt, posterior lobe triangular, apex acute but rounded. Lateral process of seventh somite distinctly bilobed, anterior lobe much smaller than posterior, apex of latter almost forming a right angle.

Submedian carinae slightly divergent on abdominal somites, especially posteriorly. Abdominal carinae spined as follows: submedian 5–6, intermediate 4–6, lateral 2–6, marginal 1–5.

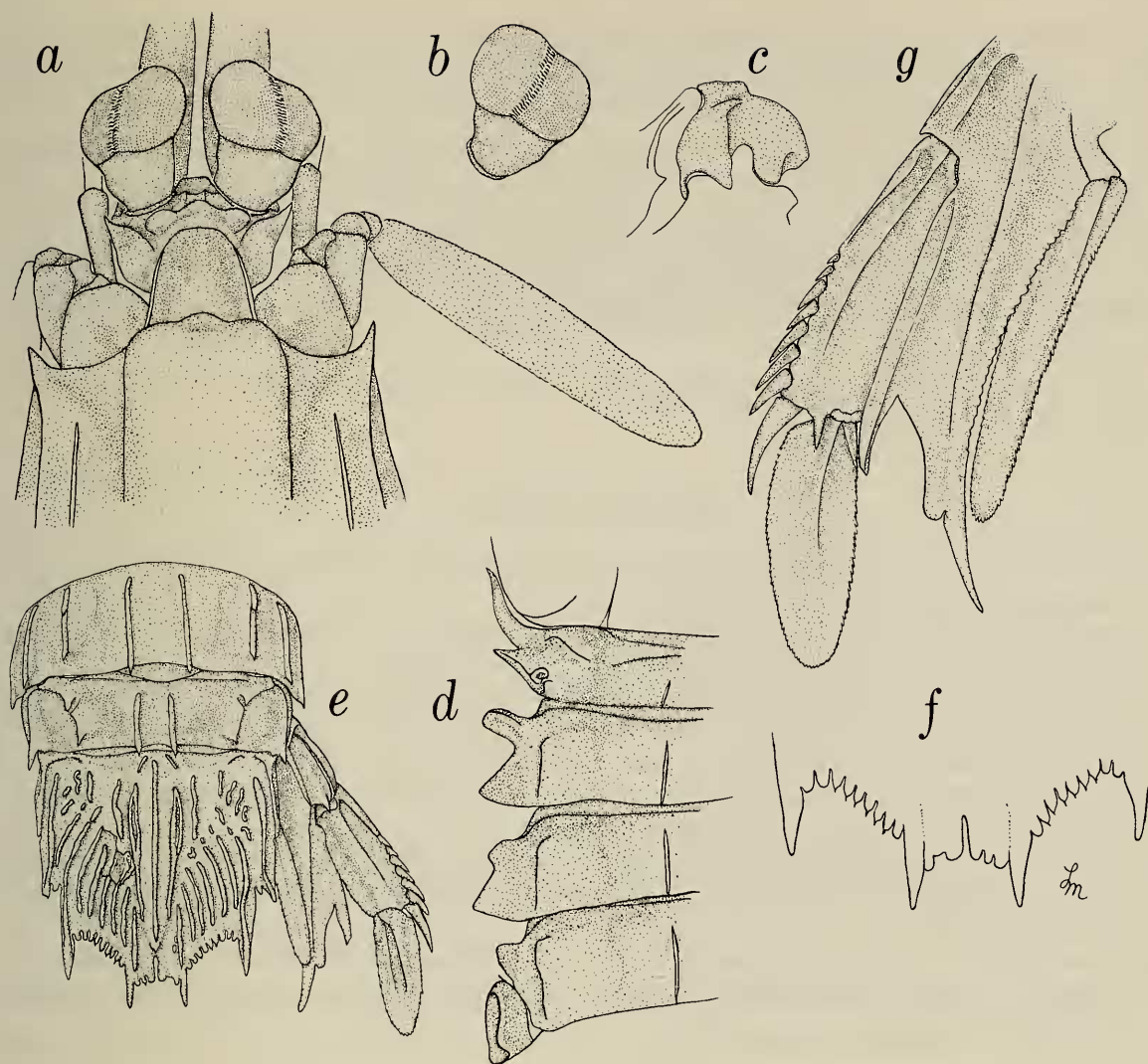


Fig. 4. *Oratosquilla microps*, male holotype: a, Anterior part of body; b, Eye; c, Carpus of claw; d, Lateral processes of exposed thoracic somites; e, Fifth and sixth abdominal somites, telson, and uropod; f, Posterior margin of telson, ventral view; g, Uropod, ventral view.

Telson flattened, slightly longer than broad, dorsal surface ornamented with numerous carinae and tubercles in curved rows, as illustrated. Prelateral lobe longer than margin of lateral tooth. Denticles rounded, 3, 9, 1, many with minute apical spinule. Ventral surface with long postanal keel.

Uropod slender, long, proximal segment of exopod longer than distal, with 8 movable spines on outer margin, distalmost not extending to midlength of distal segment. Lobe on outer margin of inner spine of basal prolongation rounded, about as wide as adjacent spine, margin concave.

Color.—Completely faded.

Measurements.—Total length of male holotype 50 mm; other measurements: carapace length 11.8; anterior width carapace 6.4; length antennular peduncle 11.5; cornea width 2.4; rostral plate length 1.8, width 2.1; telson length 10.2, width 9.4.

Remarks.—This new species is a member of the *perpensa* complex of the *perpensa* group of species within the genus *Oratosquilla* (see Manning 1978:4, for a discussion of species groups in *Oratosquilla*), those species in which the inferodistal angle of the outer face or the merus of the claw is armed, the dactylus

of the claw has six teeth, the ridge on the carpus of the claw is undivided, and the rostral plate is short. The dorsal carinae of the telson will immediately distinguish *Oratosquilla microps* from the three species now comprising that complex, *O. anomala* (Tweedie), *O. perpensa* (Kemp), and *O. stephensoni* Manning. Further, both *O. anomala* and *O. perpensa* have distinct anterior branches of the median carina of the carapace, which are completely absent in *O. microps*, and in *O. stephensoni*, a much larger species (total length to 150 mm), the lobe between the spines of the basal prolongation of the uropod is convex or straight, rather than concave.

Etymology.—The specific epithet is from the Latin and alludes to the relatively small eyes of this species.

Literature Cited

- Kemp, S. 1915. On a collection of stomatopod Crustacea from the Philippine Islands.—The Philippine Journal of Science 10(3D):169–187, plate 1.
- Manning, Raymond B. 1965. Stomatopoda from the collection of His Majesty The Emperor of Japan.—Crustaceana 9(3):249–262, figures 1, 2, plates 11, 12.
- . 1969. Notes on the *Gonodactylus* section of the family Gonodactylidae (Crustacea, Stomatopoda), with descriptions of four new genera and a new species.—Proceedings of the Biological Society of Washington 82:143–166, figures 1–8.
- . 1977. Preliminary accounts of five new genera of stomatopod crustaceans.—Proceedings of the Biological Society of Washington 90(2):420–423.
- . 1978. Further observations on *Oratosquilla*, with accounts of two new genera and nine new species (Crustacea: Stomatopoda: Squillidae).—Smithsonian Contributions to Zoology 272:1–44, figures 1–25.
- Moosa, M. Kasim. 1973. The stomatopod Crustacea collected by the Mariel King Memorial expedition in Maluku waters in 1970.—Penelitian laut di Indonesia [Marine Research in Indonesia] 13:1–30, figures 1–4.

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